

From glowbugs@theporch.com Tue Jan 21 20:06:20 1997  
Return-Path: <glowbugs@theporch.com>  
Received: from uro (localhost.theporch.com [127.0.0.1])  
by uro.theporch.com (8.8.5/AUX-3.1.1)  
with SMTP id UAA03663;  
Tue, 21 Jan 1997 20:00:39 -0600 (CST)  
Date: Tue, 21 Jan 1997 20:00:39 -0600 (CST)  
Message-Id: <199701220158.UAA01151@news2.mnsinc.com>  
Errors-To: ws4s@infoave.net  
Reply-To: glowbugs@theporch.com  
Originator: glowbugs@theporch.com  
Sender: glowbugs@theporch.com  
Precedence: bulk  
From: glowbugs@theporch.com  
To: Multiple recipients of list <glowbugs@theporch.com>  
Subject: GLOWBUGS digest 422  
X-Listprocessor-Version: 6.0c -- ListProcessor by Anastasios Kotsikonas  
X-Comment: Please send list server requests to listproc@theporch.com  
Status: 0

#### GLOWBUGS Digest 422

Topics covered in this issue include:

- 1) Re: Dow Keys More = Less  
by kc5egg@ix.netcom.com (Gerald Schmitt )
- 2) Re: BC Variable Caps - Breakdown Voltage?  
by "'AB7HI' Stephen Lee" <slee@u.washington.edu>
- 3) Re: Dow Keys More = Less  
by Conard Murray <ws4s@InfoAve.Net>
- 4) Re: BC Variable Caps - Breakdown Voltage?  
by toyboat@freenet.edmonton.ab.ca
- 5) Re: BC Variable Caps - Breakdown Voltage?  
by toyboat@freenet.edmonton.ab.ca
- 6) Re: BC Variable Caps - Breakdown Voltage?  
by Murray Kelly <mkelly@faraday.dialix.com.au>
- 7) Re[2]: VFO question  
by mack@mails.imed.com
- 8) Re: Reluctant Regen: circuit description & status  
by rdkeys@csemail.cropsci.ncsu.edu
- 9) Re: Reluctant Regen: circuit description & status  
by rdkeys@csemail.cropsci.ncsu.edu
- 10) Reluctant Regen & throttle condenser  
by Art Winterbauer <art@comet.ucar.edu>
- 11) Don't give up!!!  
by larrys@fmis02.nsc.com (LARRY SZENDREI - NSFM PROCESS ENGINEERING -  
207-775-8513)
- 12) Re: RF field strength measurements

- by rdkeys@csemail.cropsci.ncsu.edu
- 13) Re: Reluctant Regen & throttle condenser  
by rdkeys@csemail.cropsci.ncsu.edu
- 14) Re: Reluctant Regen: circuit description & status  
by rdkeys@csemail.cropsci.ncsu.edu
- 15) BA/GB on 200 meters an' down tonite anyone?????  
by rdkeys@csemail.cropsci.ncsu.edu
- 16) 45 tubes...  
by "Robert M. Bratcher Jr." <bratcher@worldnet.att.net>
- 17) Boatanchor list help needed  
by "Claton Cadmus" <aplitech@Spacestar.Net>
- 18) Wanted  
by Arthur Moe <kb7ww@aracnet.com>
- 19) Re: Boatanchor list help needed  
by "Claton Cadmus" <aplitech@Spacestar.Net>
- 20) Re: BA/GB on 200 meters an' down tonite anyone?????  
by "Brian Carling" <bry@mail1.mnsinc.com>

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Date: Mon, 20 Jan 1997 18:39:58 -0800  
From: kc5egg@ix.netcom.com (Gerald Schmitt )  
To: glowbugs@theporch.com  
Subject: Re: Dow Keys More = Less  
Message-ID: <199701210239.SAA06985@dfw-ix12.ix.netcom.com>

You wrote:

>

>I had nothing to do with this, but it begs the question...

>are you being too easily annoyed?

When private email ends up in public it stikes me the same as a private conversation ending up in the news. I had a ton of email responding to my "For Sale" posting. I didn't make a posting offering anything for sale. It stikes me like getting a Pizza you didn't order. Not only that it is posted on a reflector I don't even know about so how am I to respond to that. No after 20 or 30 pieces of mail I don't think I am too easily annoyed.

73 Jerry

>

>On 20 Jan 1997 23:25:47 GMT, you inscribed eloquently:

>

>|>More mail arrives. Now I deduce there is a boat anchor reflector and

>|>my private email to an individual has ended up posed there. This  
tears

>|>it. As of now I have no Dow Keys relays for sale. If anyone has  
written  
>|>asking for one or more sorry I am not selling at this time. I tried  
to  
>|>do someone a favor and my private corespondence is posted net wide,  
>|>without my knowledge or consent.  
>  
>|>You guessed it I am annoyed. If you are disapointed take it up with  
the  
>|>fellow who made my private corespondence public. I would appreciate  
>|>inforamtion on the reflector so I can set the record straight. No  
Dow  
>|>Keys right now sorry maybe some other time.  
>  
>|>  
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>  
>

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Date: Mon, 20 Jan 1997 22:19:43 -0800 (PST)  
From: "'AB7HI' Stephen Lee" <slee@u.washington.edu>  
To: Brian Carling <bry@mail1.mnsinc.com>  
Subject: Re: BC Variable Caps - Breakdown Voltage?  
Message-ID: <Pine.A41.3.95b.970120221050.104108A-100000@homer30.u.washington.edu>

I have repaired an air variable capacitor which was  
contacting rotor to stator. In the front of the shaft  
was a groove where a circlip needed to be installed.  
Didn't notice it at first until I pushed on the shaft  
real hard then the plates freed up. Noticed the groove  
then compared with some others. Inserted the proper  
size circlip and fixed the problem. This was in a BFO  
on an old Gonset receiver, BTW.

Stephen Lee, AB7HI

-----  
Date: Tue, 21 Jan 1997 01:02:53 -0500  
From: Conard Murray <ws4s@InfoAve.Net>  
To: kc5egg@ix.netcom.com  
Cc: glowbugs@theporch.com

Subject: Re: Dow Keys More = Less  
Message-ID: <2.2.32.19970121060253.009df49c@infoave.net>

Hi Gerald,  
I am the listowner of the glowbugs list. I didn't see the message as originally sent (there is a problem with the nameserver that the listserver is behind that is causing me to miss a few postings) so I don't know who the guilty forwarder is. I will apologize on behalf of the Glowbugs list for any inconvenience that might have been caused.  
Glowbugs is a list that serves about 100 hams that build stuff with tubes. We do allow for sale postings of components and good deals tend to get snapped up. I am sure that the party that forwarded the message to the group meant no harm.  
If you are interested in building tube equipment we would be glad to have you on Glowbugs.  
73 de Conard WS4S

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.....  
. Conard Murray WS4S Glowbugs listowner .  
. 217 Dyer Avenue ws4s@infoave.net .  
. Cookeville, TN 38501 615-526-4093 .  
. <>< Wise men still seek Him <>< .  
.....
```

-----  
Date: Tue, 21 Jan 1997 01:24:01 -0700 (MST)  
From: toyboat@freenet.edmonton.ab.ca  
To: Doug <doug@sunrise.alpinet.net>  
Cc: Multiple recipients of list <glowbugs@theporch.com>  
Subject: Re: BC Variable Caps - Breakdown Voltage?  
Message-ID: <Pine.A41.3.95.970121005007.19818A-100000@fn2.freenet.edmonton.ab.ca>

On Mon, 20 Jan 1997, Doug wrote:

> Hi Shane, funny you should ask about breakdown voltage. Years ago when  
> faced with the same sort of question, a couple buddies and I were in  
> the middle of constructing a nice, big pair of 813's linear for CW.  
> We all had the collection of BC band variables....mostly multi-section  
> 365 mickey mike caps and wanted to use one for the output cap on the  
> amp. So...we tried to create a voltage breakdown on the caps...some  
> being better than others, but the result of our exhaustive testing was  
> about 650-700 volts was enough to create corona and eventual failure of  
> the cap. Interestingly, just before the cap would break over, we'd see  
> an increase in current flow, whereupon further increase in applied  
> voltage would cause an arc.

>  
> So...in most cases, the standard BC variable will work just fine in  
> your circuit...as the only voltage across it will be RF...and at the  
> level you are working, not much of that. Use the variables...they'll  
> work right up to a KW into a resistive load. Just be sure they are  
> free of dirt and dust when you put them into the rig...we smoked one  
> that had a piece of Cat hair embedded inside the plates...what a sight.  
>  
> Have fun and keep building...the hobby can use more like you.  
>  
> 73  
>  
> Doug, K7YD  
> Livingston, MT  
>  
>  
> toyboat@freenet.edmonton.ab.ca wrote:

> > So, what is the technical diagnosis, fellow pyrex-bottle potentates?  
> > Would the simple direct parallel tank circuit work with a BC variable,  
> > in a transmitter of 350 VDC B+ ?  
> >  
> > Shane Wilcox

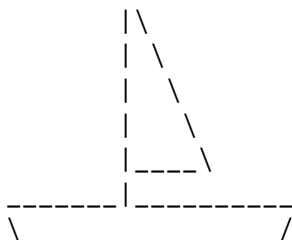
Greetings,

Thank you for the info (and the encouragement). It is welcome news. It would save me an RF choke in my wooden-chassis 6L6 oscillator. I'll probably follow through on the 1946 circuit in its original simplicity.

I've sawn, planed, sanded, glued, screwed, drilled, bored, and varnished the power supply and oscillator woodwork (whew). It's ready for final component mounting and wiring. When done, I'll have a colorburst special. Then, I've got to build an L-coupler with a coil I can tap to match whatever wire I can clandestinely erect in the trees.

Thanks again for the info.

Regards,



~~~~~  
Shane <toyboat@freenet.edmonton.ab.ca>  
~~~~~

-----  
Date: Tue, 21 Jan 1997 02:41:46 -0700 (MST)  
From: toyboat@freenet.edmonton.ab.ca  
To: Brian Carling <bry@mail1.mnsinc.com>  
Cc: Multiple recipients of list <glowbugs@theporch.com>  
Subject: Re: BC Variable Caps - Breakdown Voltage?  
Message-ID: <Pine.A41.3.95.970121013550.83746A-100000@fn2.freenet.edmonton.ab.ca>

On Mon, 20 Jan 1997, Brian Carling wrote:

> Shane & the gang, on a related subject I need your advice.  
> This week I acquired a neat little 5 band 6146 style transmitter that  
> looks clean and well made.  
> However, the PI-NET LOADING cap, a two gang (presumably 500+500 pF or so)  
> BC variable type has plates that are SCRAPING rotor to stator as  
> it is rotated! HELP! Is there ANY recommended procedure for rescuing  
> one of these variable caps?  
> \*\*\*\*\*  
> \*\*\* 73 from Radio AF4K / G3XLQ in Gaithersburg, MD USA \*  
> \*\* E-mail to: bry@mnsinc.com \*  
> \*\*\* See the great ham radio resources at: \*  
> \*\* <http://www.mnsinc.com/bry/> \*  
> \*\*\*\*\*

Hello,

I wonder if your capacitor really has much of a problem.

I noticed that BC variable frames, being frequently secured from the bottom by screws to the metal chassis, are easily "warped" or torqued out of shape, causing the close-spaced plates to either touch or be spaced improperly. This has happened to me with two single-gang 365pF variables. When the screws were slackened off, the spacing returned to normal. I found that I had to mount the offending caps with either star washers or short aluminum standoffs between the chassis and frame. If the chassis is warped, maybe the caps will also have to be mounted on a thin sheet-aluminum sub-frame, which will "give" before the heavier cap frame "warps".

The long two-gang variables would probably be much more likely to be affected by chassis warping or not-level mounting. Mounting by the front face of the frame only (where possible) would seem to avoid the problem. (Maybe there is a washer or spacer missing between the chassis and cap frame at one mounting screw, causing the warpage with tightened screws.)

I also noticed that on one variable there was an adjusting eccentric screw on the rear of the frame to achieve rotor/stator plate parallelism by moving the rotor side to side at the rear.

Other than these easy fixes, I don't know. It might be possible to carefully bend one or two bent rotor plates back into position with your fingers, if that is the problem. They are vulnerable to damage at minimum capacitance when they are fully unmeshed, obviously.

I hold the meshed caps up to daylight in an unlit room to view the spacing. Looking sideways between the plates allows the true spacing to be clearly seen under such light.

If the front bearing is messed up, maybe the little balls of the bearing popped out, causing gross shaft misalignment. Possibly replacements could be found and popped back in.

That's about all I can think of. Hope it helps.

Regards,  
Shane Wilcox

-----  
Date: Tue, 21 Jan 1997 22:51:58 +1100  
From: Murray Kelly <mkelly@faraday.dialix.com.au>  
To: toyboat@freenet.edmonton.ab.ca  
Subject: Re: BC Variable Caps - Breakdown Voltage?  
Message-ID: <32E4ADDE.7D47@faraday.dialix.com.au>

I always put any hamfest 'junque' like old variables and stuff thru the dishwasher to cleanout any fluff etc. Then carefully oil the bearings. NOT THE RUBBING CONTACTS.

Works for me.

\*\*\*\*\*  
\* Murray Kelly vk4aok mkelly@faraday.dialix.com.au \*  
\* 29 Molonga Ter. / Graceville/ QLD. 4075/ Australia \*  
\* ph/fax Intl+ 61 7 3379 3307 mobile 018 071 355 \*  
\*\*\*\*\*

-----  
Date: Tue, 21 Jan 97 08:26:19 cst  
From: mack@mails.imed.com  
To: glowbugs@theporch.com,  
Subject: Re[2]: VFO question  
Message-ID: <9700218538.AA853864247@mails.imed.com>

>Author: larrys@fmis02.nsc.com (LARRY SZENDREI - NSFM PROCESS ENGINEERING -

>I should have seen this. How about this idea: complete the DC circuit  
>for the diodes by running the load resistor from the junction of the  
>diodes to the B+ (i.e., coil center-tap). This way, the diodes  
>wouldn't need to withstand the B+ voltage. (The whole circuit "floats"  
>at B+).

This is an *\*excellent\** idea! There is almost no DC across the coil.  
a 100 or so resistor as a load for the diodes should do nicely there.  
The main problem you may have is that this is a pretty stiff load  
across that coil. It *\*might\** cause problems with the doubling action  
for 80M.

>It is my guess that the achille's heel of the idea is that on 80M the  
>coax is part of the parallel resonant circuit, which is high impedance  
>and provides a reasonably high RF voltage to the next stage. With the  
>diode trick, this condition can no longer hold, right? And if it  
>doesn't, then we have to make the source low impedance to drive the  
>capacitive load of the coax, which will reduce the RF voltage, quite  
>likely to the point of not providing a solution to my dilemma.

>I wonder if a simple series diode will generate harmonics to the  
point  
>of being helpful? If so, would the diode have to be on the "output"  
side  
>of the coax (undesirable from a practical point of view; I'd rather  
be  
>doing my band switching at this point inside the VFO cabinet), in  
order  
>to not upset the resonant circuit of coil/coax capacitance?

I think you are correct that you will uncover a lot of unwelcome  
responses with the diodes to B+ approach. I think you are on the  
right track with analysing that the lower impedances will upset the  
action of the 80M section. The impedance problem is the reason I had  
suggested to use a link coil for your 40M output. My guess is that  
you will get better doubling action from a full wave rectifier with a



link than you will get with a single diode. The goal here is to get as much energy from the VFO into the next stage as possible. Using a half wave rectifier cuts your energy (power) by 1/4.

While typing this I came across an improvement to my original idea. There are 2 problems to solve. The first is getting an impedance match from the 80M doubler coil to our diodes. The small link does this. The problem now is that we have lots of energy at 40 M but it is at a fairly low impedance. What we really need at the tube on the other end is a fairly large voltage. Instead of loading the diodes with a resistor, let's put a step up transformer to change our low voltage but high current from the diodes back into a low current higher voltage source.

I hope this experiment works.

Ray Mack  
WD5IFS  
mack@mails.imed.com  
Friendswood (Houston), TX

-----  
Date: Tue, 21 Jan 1997 11:38:53 -0500 (EST)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: jkh@lexis-nexis.com  
Cc: rdkeys@csemail.cropsci.ncsu.edu (), glowbugs@theporch.com  
Subject: Re: Reluctant Regen: circuit description & status  
Message-ID: <9701211638.AA125907@csemail.cropsci.ncsu.edu>

> Folks,  
> Can I conclude from this discussion that a failure to oscillate properly, and  
> hence to regenerate, contributed to the overloaded condition by the local BC  
> stations? I'm having a similar overloading problem with a different regen I'm  
> trying to revive.  
> Regards,  
> John Heck, KC8ETS

John, and the gang.....

Any strong signal will block a regen detector, quite effectively. That is how I run QSK with the old RAL and the old '01A detector and one step sets. Key down blocks it to cutoff, and key up allows it to operate normally, with a recovery time of a few milliseconds (all on a 3 to 10 foot short indoor antenna).

If you have too much antenna and too much coupling into a regen detector, one of several things can happen....1) the bcst stn will overload the detector and be heard everywhere, or 2) it will block the detector and it might require much more regeneration to oscillate, or 3) it will tend to desense the detector from the overloading biasing it down somewhat.

The only cures I have found for such situations are....1) shielding and more shielding and more shielding, 2) uncoupling and more uncoupling and more uncoupling, and 3) tuned front ends in front of the detector along with 1 and 2, above.

Without any antenna, ANY regen set should pick up enough signal to tell it is operational or to hear local signals, without any problem (for the usual breadboard or open boxed homebuilt set). Good shielded sets, properly designed WILL work on a 12 inch antenna for local signals. If it won't work that way, something else is wrong.

On the topic of the ticklers and throttle condensers and chokes, etc., you have to think a little about what it is that is going on in the detector at any given point, and then you will be able to decide what the proper values of components are. For example, the rf choke needs to be good for the frequency of use, and for almost all the usual regen sets through time, that is the most common junk box size --- 2.5 millihenries. But, to all practical intents and purposes, at the usual bcst through 20 meters or so that we are likely to use a regen detector, any value of 1-10 millihenries is quite satisfactory. Think about what it has to do --- shunt rf away from the audio and bypass it to ground via the throttle condenser. Anything in the microhenry range would be suspect. Anything in the tens of millihenries through the henry range would be suspect, although if not too high would probably work. If the values then seem right, think about the function of the part in its location in the proposed circuit. If the RF choke occurs in front of the throttle then something is probably wrong. If there is no RF choke and a throttle condenser or resistor is there, then something may be wrong, also, if it is in the plate or the rf oscillatory circuit. If it is merely a screen bypass, then that is different, although a choke may be beneficial there for added control through the screen biasing pot between the bypass and the pot. In the old days, the spot where a choke would go was often marked ``X'' and a note in the article about ``if you have trouble obtaining sufficient control of regeneration, the addition of an RF choke (perhaps 250 turns of no. 30 dsc wire on a thread spool) at point 'X' will often help.....'. This was in 1922. By 1929, it was s.o.p. for the choke to be there. Later in the 50's and 60's when things got really cheap, and the use of a throttle condenser of proper size was expensive(?) a common pot was shunted across the tickler. That is a very crude way to control regeneration, and never as good as a proper throttle condenser and choke.

If you think a bit about what the circuit is doing, you can readily

spot mislabeled or improper circuits that sometimes get published.  
Think of it as Elementary Spark, Audion and Radio Theory - 101  
(ESART-101), although you probably won't find it in the course catalog,  
anymore.....(:+{}.....

73/ZUT DE NA4G/Bob UP

p.s. I have yet to find a good regenerator circuit that would not work  
as anticipated, but I have run into some things that get into the  
usual ham/hobby electronics rags that can be problematic and a bit  
suspect.

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Date: Tue, 21 Jan 1997 11:55:45 -0500 (EST)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: art@comet.ucar.edu  
Cc: rdkeys@csemail.cropsci.ncsu.edu ()  
Subject: Re: Reluctant Regen: circuit description & status  
Message-ID: <9701211655.AA125961@csemail.cropsci.ncsu.edu>

> I've been asked for a quickie description of the "reluctant regen", aka  
> the Globetrotter Receiver, created by W2DJJ and written up in the 1934  
> Short Wave Radio Manual and most recently described by Dave Ingram, K4TWJ,  
> in CQ, Feb. 1990.  
>  
> Both the detector and audio circuits use no. 30 tubes. The detector's  
> output goes from its plate via the tickler coil and a 2.5 uH choke to  
> the primary of the AF transformer. The throttle condenser (I think it's  
> called) taps between the choke and the transformer. The other end of this  
> 100 uuf var condenser goes to ground.

BINGO!

The throttle condenser always goes between the tickler and the rf choke  
to ground, and the rf choke always goes between the throttle and the  
audio transformer.....thusly:

```
TICKLER -----+----- RF CHOKE ----- AUDIO OUTPUT TO XFMR OR WHATEVER
                |
                |
            THROTTLE CONDENSER
                |
                gnd
```

Note: A value of 100uufd is pushing the lower limit of utility for good throttle control. It will probably work fine, but the control gets more tricky and touchy as the value of the throttle condenser is decreased from about 500-50pf. A throttle of less than 100uufd is probably not a good idea. My preference is for a 250-500 uufd throttle condenser, usually.

> The tuning condenser, another 100 uuf  
> var cap, goes between ground and the grid of the condenser via an RC  
> circuit: 3 Mohm resistor and a 100 uuf mica cap in parallel. (Do you  
> see a trend with 100 uuf caps here?) The grid coil (tank coil?) is  
> in parallel across the tuning var. condenser.

They are classically right on.

I prefer as little grid tuning condenser as possible (usually 35uufd max).

I prefer a 10-20uuf grid condenser and a 10 meg ohm grid leak, likewise.

> Still no luck with the little critter. I can certainly hear my MFJ antenna  
> analyzer at the proper frequencies, so the grid coils seem to work as  
> advertised. And local broadcast stations come barreling through no matter  
> what the tuning condenser is set to! I've slowly peeled off tickler loops,  
> playing with the spacing between the tickler and the grid coils and reversing  
> the tickler connections at every opportunity. I've even spread out the  
> tickler windings (which I understand are supposed to be close-wound).  
> However, I've not heard any hiss or even succeeded in getting any motor  
> boating. I've tried various number of tickler windings on either side of  
> the recommended number, from 100% of grid coil turns to 0% (short). And  
> I've used various gauge wires, from 30 to 18.

BINGO!

Basically all you have is a classic triode grid-leak detector without regeneration. The throttle is not working because it is in the wrong place. Reset the throttle to its proper location, and it should work just fine.

> I've triple-checked the wiring against the schematic and have done continuity  
> checks to test for bad solder connections or breaks. I have an extra #30  
> tube and have used it in both the detector and audio stages.  
>  
> I think I know when I'm licked. This one is pretty close to being wrapped  
> up in a box and stored in the basement with some of my previous projects with  
> which I've attained similar success! One of these days I'll rent a table at  
> a local hamfest and see if I can find suitable homes for them :) It gets

> depressing looking at 'em after a while.

Nah! It is just a trivial misprint or misunderstanding. The location of the throttle condenser is always plate upstream of the rf choke and audio output.

> Lesson learned: thank goodness for commercially available gear!  
> 73 de Art, WA50ES

Hang in there Art, it will work fine, if you get the throttle installed correctly.

73/ZUT DE NA4G/Bob UP

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Date: Tue, 21 Jan 1997 09:01:52 -0700 (MST)  
From: Art Winterbauer <art@comet.ucar.edu>  
To: glowbugs <glowbugs@theporch.com>  
Subject: Reluctant Regen & throttle condenser  
Message-ID: <Pine.SUN.3.95.970121085342.12546C-100000@spike>

Thanks for the overwhelming response! The consensus is that the throttle condenser is misplaced: it needs to tap between the tickler and the choke.

I moved said throttle and, after a few experiments with the coils, still no regen. So, next on the list is to come up with more capacitance for the throttle (will begin scavenging for that soon), and, if that fails, decrease the capacitance and increase the resistance in the grid's RC circuit. Another suggestion was to try to use a real ground rod for grounding instead of the AC mains' ground.

All in all, lots of good suggestions to help me along. Again, thanks!

Art WA50ES

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Date: Tue, 21 Jan 1997 13:28:33 -0500  
From: larrys@fmis02.nsc.com (LARRY SZENDREI - NSFM PROCESS ENGINEERING - 207-775-8513)  
To: art@comet.ucar.edu, glowbugs@theporch.com

Subject: Don't give up!!!

Message-ID: <97012113283363@fmis02.nsc.com>

Art... Don't give up!!! I think the reason why your regen won't is because of the wrong location of the throttle capacitor. Unless I'm terribly mistaken, it needs to be from the junction of the "cold" (non-plate) end of the tickler coil and RF choke, to ground. The tickler needs an RF return to ground for regeneration to occur, and the throttle capacitor provides this, in variable fashion. This won't occur with the throttle cap connected to the junction of the RF choke and AF transformer - move it to the other end of the RF choke, and see if you get anything. If not, then try reversing your tickler leads, and I bet one way or the other, it'll start to percolate.

Maybe the original schematic was in error. I had a similar problem with a regen I built. Everything was fine until I added an RF choke to keep the RF off the 'fones - then the thing stopped oscillating. I stuck a bypass from the RF "cold" end of the tickler to ground (simulating the throttle cap at full capacitance setting in your case) and voila!! Oscillation returned, and only then did I REALLY understand how the circuit worked! (In this case I was using a pot across the tickler to control regeneration, but the situation is completely analogous.)

Don't give up!!!

Good Luck,  
Larry (NE1S)  
larrys@nsc.com

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Date: Tue, 21 Jan 1997 15:47:11 -0500 (EST)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: sinned@VNET.IBM.COM  
Cc: rdkeys@csemail.cropsci.ncsu.edu (), glowbugs@theporch.com  
Subject: Re: RF field strength measurements  
Message-ID: <9701212047.AA126551@csemail.cropsci.ncsu.edu>

>  
> Last weekend measurements were taken at the QTH's of W5FRS and N5BU  
> with a wide band field strength meter, calibrated in Volts-per-Meter.  
> The results are very similar to those published in the 1994 ARRL Hand-  
> book, pg 36-5.

Sounds reasonable.

> Antennas used were wire dipoles and inverted V's at height's from 30  
> to 45 ft. The strongest field measured was 75 V/M with 100W output.

> Most readings were much lower, in the 2 to 10 V/M range, even at  
> power outputs from 170 to 400W on 80, 40, and 15 meter frequency  
> bands. Transmission mode was continuous unmodulated carrier, ie.  
> key held down and finals glowing.

Sounds like you had coax fed antennas of the usual sort.  
I don't run that sort of usual station, tho, for comparison.  
We need to assess the problems with our genuine worst case  
boatanchors and glowbugs of whatever vintage. In my case,  
strictly pre-war boatanchor style gear, here, mostly. Thus.....

Problems....

- 1) how were you feeding the antennas?
- 2) what were the lengths of feedline for the frequencies used?
- 3) what about an end fed Fuchs fundamental half wave antenna fed against ground?
- 4) what about the classic 1/4 wave up and 1/4 wave out counterpoise antenna?
- 5) what about a classic real end fed zepp antenna with tuned or untuned open wire feeders?
- 6) what about a Windom off-center-fed single-wire feeder antenna?  
This is not the ``Carolina Windom`` coax fed thingie.....
- 7) what about a plain old odd random wire, say 100 feet up to a handy tree, with the antenna going out the wall and up to a small post and over to the tree (a classic random wire antenna)?  
Feed with a random wire tuner from a classic DX-60, for example.....
- 8) what about an HF J-pole antenna?
- 9) what about a classic 3/4 wave end fed antenna such as the classic single wire end fed Hertz with 65 feet up and a 130 foot flat top, run against ground or a 1/4 wave counterpoise?
- 10) what about a breadboard transmitter feeding any of these?
- 11) what about a breadboard antenna tuner used with a normal coax style modern boatanchor feeding any of these?

These are the classic antennas for boatanchoring/glowbugging that the FCC and ARRL and most other folks tests have not adequately covered. Granted the usual rig should be fine, and no RF problem,

but....., there may be some of us that run an 807 or 100TH breadboard rig with an end fed antenna, etc..... There may be some particularly hot antennas and designs that we should, at least, be aware of.

> CONCLUSION: We don't have much to worry about on the 3-30MHZ bands.  
> The allowable limit for the stricter "uncontrolled environment" is  
> much greater than the field strengths actually produced. Only a  
> maximum legal limit transmitter would probably be able to produce  
> fields approaching the published maximum safe values.

Generally, true, but we need to establish some hard and fast real data for the odd classics that we are wont to run, in our crazy BA/GB ways. The mainstream folks happily avoid this, so far.

I would like to see some trial FD antenna systems set up for our BA/GB trials, using the classics and classic antennas and feeders, and really see what is there. If it turns out to be no sweat, at least we have taken the time to generate some real data for the record.

> BTW: To save space/time I have not included the actual values here.  
> If anyone wants the detailed info, let me know privately and I'll  
> e-mail it to you.

I would like to accumulate any such data that our BA/GB crew can put together from actual tests using real equipment in real stations. So, if you can, send the data along to me, for the record.

I am still tackling the problem of trying to come up with a simple standardized plain meter of some sort to use as a generic bottom-end reference.

Generally, we should have no problems, but there are a few of us odd fellows that would like to put the KW Hartley up on 80M sometime, and know that we are within limits, reasonably speaking. Or, if the KW is not technically feasible, then what the practical limit of power for the open rig would be to meet the standards, using, for example a breadboard rig with a breadboard antenna tuner and a classic end-fed Fuchs antenna.

I can easily envision that some bureaucrat with no real insight will arbitrarily decree that our BA/GB rigs are forbidden because they don't meet ``modern standards''. It is up to us to INSURE that we can combat that type of nonsense in a reasonable and adequately scientific manner.

Food for thought, as we nurture the filaments.....(:+}}.....

> Dennis W5FRS



> sinned@vnet.ibm.com

Dennis.... what equipment did you use and what specific setups did you use?

73/ZUT DE NA4G/Bob UP

-----  
Date: Tue, 21 Jan 1997 16:22:08 -0500 (EST)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: art@comet.ucar.edu  
Cc: rdkeys@csemail.cropsci.ncsu.edu (), glowbugs@theporch.com  
Subject: Re: Reluctant Regen & throttle condenser  
Message-ID: <9701212122.AA126644@csemail.cropsci.ncsu.edu>

>  
> Thanks for the overwhelming response! The consensus is that the  
> throttle condenser is misplaced: it needs to tap between the tickler  
> and the choke.  
>  
> I moved said throttle and, after a few experiments with the coils,  
> still no regen.

More throttle condenser is always good, up to a point. Remember that it merely functions as a variable bypass, so whatever gives that function will work. But, for ease, use a bit on the high side for easier control and less sensitivity to body/hand capacitance effects as you rotate the throttle control. Around 500pf is the practical limit, although there is no reason a 5 gang 365pf cap should not work, if you can find the right tickler value.

There is a point at which you may need to add or subtract tickler to set the window of regeneration. Generally, you do this by picking a plate voltage for the detector that you want it to run at, and set the throttle at half way and then adjust the number of tickler turns to suit it just going into oscillation (it is a pain but that is the ideal way to generate the first set of coil/tickler data). You can do that by making a voltage vs oscillation plot and just sweep the plate voltage. If it oscillates at too low a voltage, the tickler is too much --- or, if it won't oscillate, the tickler is too little or whatever is controlling the feedback is too little or inoperative (bad throttle caps are more common than one might think, as are a bad solder joint or connection somewhere --- remember regenerator currents are feeble and work best with good connections).

Now that the throttle condenser is set right, look at a variable voltage supply and run the throttle condenser fully meshed and adjust the volage up from zero. If you hear a plop or a hissing sound, then it is going into regeneration, and it may be going TOO far into regeneration at which point the gain of the detector falls off markedly, like it is dead. That can sometimes be confusing. The first time it happened to me, I thought it was not working, but, in fact it had gone into regeneration and oscillation at about 6 volts on the plate. When I got it up to 48 volts on the plate, it seemed dead. I finally found the oscillator beat by sweeping it against a rice box monitor receiver, and then backed off on the throttle and it would not stop oscillation --- a dead giveaway of too much tickler. After untickling it a bit, it worked fine.

> So, next on the list is to come up with more  
> capacitance for the throttle (will begin scavenging for that soon),  
> and, if that fails, decrease the capacitance and increase the  
> resistance in the grid's RC circuit. Another suggestion was to try to  
> use a real ground rod for grounding instead of the AC mains' ground.

Rules de thumbe de triode regennies:

- 1) grid resistor 1-10 meg ohms (I prefer 10 megs)
- 2) grid condenser 10-250pf (I prefer 10-20pf)
- 3) at a detector plate voltage of 36-48vdc a tickler value of 25% of the grid coil should always work.

For testing, you probably should not need a ground on the rig. A good swl receiver will help to spot the thing once oscillation can be had.

A quick check of oscillation is to touch the finger to the grid lead between the grid resistor - tube grid junction. If it pops, it is going into oscillation. If it don't pop, nil oscillation. The RAL has a pushbutton on the front panel for this check that shorts across the circuit somewhere (forget where, right off --- cathode I think, since it is an electron coupled circuit, but it also makes a nice hiss when it oscillates, if you listen carefully).

> All in all, lots of good suggestions to help me along. Again, thanks!  
> Art WA50ES

Hey, what is glowbuggin all about, if it is not to help each other out.

There was a thread of using a regen detector as a cw transmitter.

I concur --- It works GREAT! I have done this several times among the locals.....merely put a key or a relay in the plate lead or the antenna lead. It works fine on 80M out to several miles, and my OM used to do that with BC-221's around the old WWII Pt. Loma research facility, for fun. There is a classic single tube 200 meter cw transceiver circuit using a J tube, if my memory is correct, in Radio Broadcasting about 1922 or 1923. It ought to make a neat glowbugging project with a 6J5 or a 12B4 or such....(:+}}.....

73/ZUT DE NA4G/Bob UP

-----  
Date: Tue, 21 Jan 1997 16:42:33 -0500 (EST)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: art@comet.ucar.edu  
Cc: rdkeys@csemail.cropsci.ncsu.edu (), glowbugs@theporch.com  
Subject: Re: Reluctant Regen: circuit description & status  
Message-ID: <9701212142.AA126719@csemail.cropsci.ncsu.edu>

> I've been asked for a quickie description of the "reluctant regen", aka  
> the Globetrotter Receiver, created by W2DJJ and written up in the 1934  
> Short Wave Radio Manual and most recently described by Dave Ingram, K4TWJ,  
> in CQ, Feb. 1990.  
>  
> Both the detector and audio circuits use no. 30 tubes. The detector's  
> output goes from its plate via the tickler coil and a 2.5 uH choke to  
> the primary of the AF transformer. The throttle condenser (I think it's  
> called) taps between the choke and the transformer. The other end of this  
> 100 uuf var condenser goes to ground. The tuning condenser, another 100 uuf  
> var cap, goes between ground and the grid of the condenser via an RC  
> circuit: 3 Mohm resistor and a 100 uuf mica cap in parallel. (Do you  
> see a trend with 100 uuf caps here?) The grid coil (tank coil?) is  
> in parallel across the tuning var. condenser.

Art.... If you are using period black micas (1930 style), they are often not of the best quality, and can have rather high leakage, nullifying the grid leak resistor. That also might be something to check. The 3 meg ohm and 100pf biasing network are appropriate values for a '30, but if one is open or shorted, for rf, even though it checks out OK for dc, that could be a problem. I had a beautiful Atwater Kent grid capacitor (the tin/mica folded metal strip one) that I used on my period '01A detector and one step. It went south, for no reason at all, but checked out fine on an ohmmeter. Subbing it with a modern 33pf cap and the circuit worked great. Now to find another metal mica AK cap, for period effect.....

Bob/NA4G

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Date: Tue, 21 Jan 1997 17:35:23 -0500 (EST)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: glowbugs@theporch.com, boatanchors@theporch.com  
Cc: rdkeys@csemail.cropsci.ncsu.edu ()  
Subject: BA/GB on 200 meters an' down tonite anyone?????  
Message-ID: <9701212235.AA126857@csemail.cropsci.ncsu.edu>

I haven't been on the BA/GB 200 meters an' down QRG (1802R500 khz) in a great long while.... The ol' Top Band is hot as a firecracker, lately, so anyone interested in plying the ethers tonite about 0200/0300/0400/0500? I will keep the RAL hot on the QRG, along with Big Bertha Radiomarine, just to see if anyone still be about..... wats be fine an fiery in the ol glo....

73/ZUT DE NA4G/Bob UP

-----  
Date: Tue, 21 Jan 1997 17:27:53 -0600  
From: "Robert M. Bratcher Jr." <bratcher@worldnet.att.net>  
To: glowbugs@theporch.com  
Subject: 45 tubes...  
Message-ID: <3.0.32.19970121172750.006c00ec@postoffice.worldnet.att.net>

Didn't find any at the HVRA swap meet last weekend.  
I'm sorry, really looked through every box of tubes!

Robert M. Bratcher Jr.  
E-mail to:  
bratcher@worldnet.att.net  
Record collector, 8mm, super 8, 16 and 35mm Film collector.  
I like old radio's too.  
Collins, Hallicrafters, National & Hammurland are my Favorites!

-----  
Date: Tue, 21 Jan 1997 19:05:40 -0600  
From: "Claton Cadmus" <aplitech@Spacestar.Net>  
To: "Glowbugs" <glowbugs@theporch.com>  
Subject: Boatanchor list help needed  
Message-ID: <199701220106.TAA14083@Spacestar.Net>

Would some kind soul drop me an e-mail if they are a member of the

boatanchors list. I need a message relayed to the list.

Thanks

73 de KA0GKC Claton Cadmus  
E-mail cla@spacestar.net  
ARRL, QRP-ARCI, NorCal, ARCC, MNQRP Society

-----  
Date: Tue, 21 Jan 1997 17:40:45 -0800  
From: Arthur Moe <kb7ww@aracnet.com>  
To: glowbugs@theporch.com  
Subject: Wanted  
Message-ID: <199701220140.RAA13141@trapdoor.aracnet.com>

Time to try again.

WANTED

1. Old style pi wound RF chokes. Anyone know where to get them?
2. Bell Wire. This is old red/white or blue/white cotton covered wire.  
I could use 50 feet.

Thanks  
73's  
art  
KB7WW

..-.-

#### AT THE END OF THE OREGON TRAIL

Arthur Moe	ARRL - Life
A.R.S. KB7WW	SMIRK #733
QTH: Oregon City, Or.	QRP ARCI
kb7ww@aracnet.com	QRP-1 #290

-----  
Date: Tue, 21 Jan 1997 19:43:38 -0600  
From: "Claton Cadmus" <aplitech@Spacestar.Net>  
To: "Multiple recipients of list" <glowbugs@theporch.com>  
Subject: Re: Boatanchor list help needed

Message-ID: <199701220144.TAA16064@Spacestar.Net>

Thanks a kind soul has been found.

73 de KA0GKC Claton Cadmus

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Date: Tue, 21 Jan 1997 17:58:27 +0000  
From: "Brian Carling" <bry@mail1.mnsinc.com>  
To: rdkeys@csemail.cropsci.ncsu.edu, glowbugs@theporch.com  
Subject: Re: BA/GB on 200 meters an' down tonite anyone????  
Message-ID: <199701220158.UAA01151@news2.mnsinc.com>

Well, it is almost 0200 now and 1802 is very quiet! A big signal is on 1806 and I hear some weak ones WAY down below the noise floor on 1802.

Uh oh - there is someone calling W5THW - was it NA4G ??  
Only gave his call once! it is 8:56 p.m. EST as I write this.

I will try you - Bry AF4K

On 21 Jan 97 at 15:15, rdkeys@csemail.cropsci.ncsu.e spoke about BA/GB on 200 meters an' down tonite and said:

> I haven't been on the BA/GB 200 meters an' down QRG (1802R500 khz)  
> in a great long while.... The ol' Top Band is hot as a firecracker,  
> lately, so anyone interested in plying the ethers tonite about  
> 0200/0300/0400/0500? I will keep the RAL hot on the QRG, along with  
> Big Bertha Radiomarine, just to see if anyone still be about.....  
> wats be fine an fiery in the ol glo....

>

> 73/ZUT DE NA4G/Bob UP

>

>

\*\*\*\*\*  
\*\*\* 73 from Radio AF4K / G3XLQ in Gaithersburg, MD USA \*  
\*\* E-mail to: bry@mnsinc.com \*  
\*\*\* See the great ham radio resources at: \*  
\*\* <http://www.mnsinc.com/bry/> \*  
\*\*\*\*\*

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End of GLOWBUGS Digest 422

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